

THE FOLLOWING IS A LISTING OF THE CURRENTLY PENDING CLAIMS:

1-121 (Canceled)

122. (New) A method of determining a concentration of an analyte in a small sample volume, the method comprising steps of:

contacting the sample with a fiber optical sensor comprising a working membrane, a solid support holding the membrane and a light conducting means, wherein the working membrane is sized to react with less than 1 microliter of sample;

applying a source light to the working membrane;

measuring reflected light by the sensor working membrane at a plurality of times while portion of the analyte is being oxidized; and

determining, by photoelectricity, a concentration of the analyte in the sample using the measured current or voltage.

123. (New) A fiber optical sensor comprising:

an optical fiber comprising at least one fiber, a first and second end and a first diameter, said first end receiving a light from the photometrical detector for transmission through said at least one fiber to said second end;

a working membrane comprising a flat membrane material impregnated with a dried reagent solution that comprises optical properties that change with the quantity of the analyte, said flat membrane material cut in a circular shape with a second diameter matching said first diameter and further comprising a first flat

surface for contacting the sample volume and a second flat surface, wherein a size of the sample volume required for testing can be minimized; and

means for bonding said second side to said second end where said light impinges on said second side and a reflected light indicating changes in said optical properties is effectively returned through said at least one fiber to the photometrical detector where the quantity of the analyte in the minimized size of the sample volume can be measured.

124.(New) The device as recited in claim 023, wherein said first end is removably inserted into a detection slot of the photometrical detector and the test tip device is disposable.

125.(New) The device as recited in claim 023, wherein said first and second ends are polished.

126.(New) The device as recited in claim 023, wherein said change in optical properties is a color change.

127.(New) The device as recited in claim 023, wherein said flat membrane material further comprises a uniformly porous hydrophilic membrane.

128.(New) The device as recited in claim 023, wherein said reagent solution further comprises oxidase/peroxidase enzymes.

129.(New) The device as recited in claim 023, wherein the minimized size of the sample volume can be measured in an in vitro blood glucose self-monitoring system.

130.(New) A test tip device for a photometrical detector used for measuring a quantity of an analyte in a sample volume, the device comprising:

a micro tube comprising a first open end, second end and a first diameter, said first open end receiving an optical probe from the photometrical detector where the optical probe passes through said micro tube to said second end;

a reagent pad comprising a flat membrane material impregnated with a dried reagent solution that comprises optical properties that change with the quantity of the analyte, said flat membrane material cut in a circular shape with a second diameter matching said first diameter and further comprising a first flat surface for contacting the sample volume and a second flat surface, wherein a size of the sample volume required for testing can be minimized; and

means for bonding said second side to said second end where light from the optical probe impinges on said second side and a reflected light indicating changes in said optical properties is effectively returned through the optical probe to the photometrical detector where the quantity of the analyte in the minimized size of the sample volume can be measured.

131.(New) The device as recited in claim 130, wherein the optical probe is removably inserted into said first open end and the test tip device is disposable.

132.(New) The device as recited in claim 130, wherein said change in optical properties is a color change.

133.(New) The device as recited in claim 130, wherein said flat membrane material further comprises a uniformly porous hydrophilic membrane.

134.(New) The device as recited in claim 130, wherein said reagent solution further comprises oxidase/peroxidase enzymes.

135.(New) The device as recited in claim 130, wherein the minimized size of the sample volume can be measured in an in vitro blood glucose self-monitoring system.